

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-72 (Previously Cancelled)

73. (Currently Amended) The DNA of a an isolated cell generated by nuclear transfer of senescent, near-senescent, or checkpoint-arrested cells and said cell having the genome of a non-human mammal, ~~which DNA comprises telomeres comprising tracts of telomeric tandem repeat sequences that are more uniform than those present in telomeres tracts of telomeric tandem repeat sequences~~ of cells of said non-human mammal;
~~—wherein said more uniform tandem repeat sequences are in the portions of the telomeres of said DNA that connect at one end to chromosomal, non-telomeric DNA, and are as long as the telomeres of cells of said non-human mammal.~~

74. (Currently Amended) The DNA of the isolated cell of Claim 73, which comprises telomeres that are longer than telomeres of cells of said non-human mammal.

Claims 75-86 (Previously Cancelled)

87. (Currently Amended) The DNA of the isolated cell of Claim 73, which comprises telomeres that are at least as long as telomeres of cells of said non-human mammal.

88. (Currently Amended) The DNA of the isolated cell of Claim 73, wherein the non-human mammal is a pig, goat, cat, dog, rat, mouse, bovine, buffalo, sheep, horse, rabbit, or a non-human primate.

89. (Currently Amended) The DNA of the isolated cell of Claim 73, wherein the non-human mammal is an ungulate.

90. (Currently Amended) The DNA of the isolated cell of Claim 89, wherein the ungulate is a bovine.

91. (Currently Amended) The DNA of the isolated cell of Claim 73, ~~wherein which is~~ genetically altered with respect to the DNA of said non-human mammal is genetically altered by addition, modification, substitution, or deletion of one or more genes.

92. (Currently Amended) The DNA of the isolated cell of Claim 91, ~~wherein said DNA~~ which is genetically altered by a method comprising homologous recombination.

93. (Currently Amended) ~~Isolated~~ The DNA of a an isolated cell generated by nuclear transfer of senescent, near-senescent, or checkpoint-arrested cells and said cell having the genome of a mammal, which DNA comprises telomeres comprising tracts of telomeric tandem repeat sequences that are more uniform than those present in telomeres tracts of telomeric tandem repeat sequences of cells of said mammal;

~~wherein said more uniform tandem repeat sequences are in the portions of the telomeres of said DNA that connect at one end to chromosomal, non-telomeric DNA, and are as long as the telomeres of cells of said mammal.~~

94. (Currently Amended) The ~~isolated DNA~~ of the isolated cell of Claim 93, which comprises telomeres that are longer than telomeres of cells of said mammal.

95. (Currently Amended) The ~~isolated DNA~~ of the isolated cell of Claim 93, which comprises telomeres that are at least as long as telomeres of cells of said mammal.

96. (Currently Amended) The ~~isolated DNA~~ of the isolated cell of Claim 93, wherein the mammal is a pig, goat, cat, dog, rat, mouse, bovine, buffalo, sheep, horse, rabbit, human, or a non-human primate.

97. (Currently Amended) The ~~isolated DNA~~ of the isolated cell of Claim 93, wherein the mammal is an ungulate.

98. (Currently Amended) The ~~isolated DNA~~ of the isolated cell of Claim 97, wherein the ungulate is a bovine.

99. (Currently Amended) The ~~isolated DNA~~ of the isolated cell of Claim 93, wherein the mammal is a human.

100. (Currently Amended) The ~~isolated~~ DNA of the isolated cell of Claim 93 wherein ~~which is genetically altered with respect to the DNA of said mammal~~ is genetically altered by addition, modification, substitution, or deletion of one or more genes.

101. (Currently Amended) The ~~isolated~~ DNA of the isolated cell of Claim 100, wherein said DNA ~~which~~ is genetically altered by a method comprising homologous recombination.

102. (Currently Amended) The DNA of a an isolated cell generated by nuclear transfer of senescent, near-senescent, or checkpoint-arrested cells and said cell having the genome of a non-human mammal, ~~which DNA comprises telomeres comprising~~ tracts of telomeric tandem repeat sequences that are more uniform than ~~those present in telomeres~~ tracts of telomeric tandem repeat sequences of an age-matched control cell of the same type and species that is not generated by nuclear transfer ~~techniques~~.

~~wherein said more uniform tandem repeat sequences are in the portions of the telomeres of said DNA that are connect at one end to chromosomal, non-telomeric DNA, and are as long as the telomeres of the age-matched control cell.~~

103. (Currently Amended) The DNA of the isolated cell of Claim 102, which comprises telomeres that are longer than telomeres of said age-matched control cell.

104. (Currently Amended) The DNA of the isolated cell of Claim 102, which comprises telomeres that are at least as long as telomeres of said age-matched control cell.

105. (Currently Amended) The DNA of the isolated cell of Claim 102, wherein the non-human mammal is a pig, goat, cat, dog, rat, mouse, bovine, buffalo, sheep, horse, rabbit, or a non-human primate.

106. (Currently Amended) The DNA of the isolated cell of Claim 102, wherein the non-human mammal is an ungulate.

107. (Currently Amended) The DNA of the isolated cell of Claim 106, wherein the ungulate is a bovine.

108. (Currently Amended) The DNA of the isolated cell of Claim 102 wherein which ~~is genetically altered with respect to the DNA of said mammal~~ is genetically altered by addition, modification, substitution, or deletion of one or more genes.

109. (Currently Amended) The DNA of the isolated cell of Claim 108, wherein said DNA which is genetically altered by a method comprising homologous recombination.

110. (Currently Amended) ~~Isolated~~ The DNA of a an isolated cell generated by nuclear transfer of senescent, near-senescent, or checkpoint-arrested cells and said cell having the

genome of a non-human mammal, ~~which DNA comprises telomeres comprising~~ tracts of telomeric tandem repeat sequences that are more uniform than ~~those present in telomeres~~ tracts of telomeric tandem repeat sequences of an age-matched control cell of the same type and species that is not generated by nuclear transfer techniques.

~~wherein said more uniform tandem repeat sequences are in the portions of the telomeres of said DNA that connect at one end to chromosomal, non-telomeric DNA, and are as long as the telomeres of the age-matched control cell.~~

111. (Currently Amended) The ~~isolated~~ DNA of the isolated cell of Claim 110 which comprises telomeres that are longer than telomeres of said age-matched control cell.

112. (Currently Amended) The ~~isolated~~ DNA of the isolated cell of Claim 110 which comprises telomeres that are at least as long as telomeres of said age-matched control cell.

113. (Currently Amended) The ~~isolated~~ DNA of the isolated cell of Claim 110, wherein the mammal is a pig, goat, cat, dog, rat, mouse, bovine, buffalo, sheep, horse, rabbit, human or a non-human primate.

114. (Currently Amended) The ~~isolated~~ DNA of the isolated cell of Claim 110, wherein the mammal is an ungulate.

115. (Currently Amended) ~~The isolated DNA~~ of the isolated cell of Claim 114, wherein the ungulate is a bovine.

116. (Currently Amended) ~~The isolated DNA~~ of the isolated cell of Claim 110, wherein the mammal is a human.

117. (Currently Amended) ~~The isolated DNA~~ of the isolated cell of Claim 110 wherein ~~which is genetically altered with respect to the DNA of said mammal~~ is genetically altered by addition, modification, substitution, or deletion of one or more genes.

118. (Currently Amended) ~~The isolated DNA~~ of the isolated cell of Claim 91, wherein said DNA ~~which~~ is genetically altered by a method comprising homologous recombination.

119. (Currently Amended) ~~A~~ An isolated chromosome comprising DNA of claim 73.

120. (Currently Amended) ~~A~~ An isolated chromosome comprising DNA of claim 87.

121. (Currently Amended) ~~A~~ An isolated chromosome comprising DNA of claim 91.

122. (Currently Amended) ~~A~~ An isolated chromosome comprising DNA of claim 102.

123. (Currently Amended) ~~A~~ An isolated chromosome comprising DNA of claim 104.

124. (Currently Amended) ~~A~~ An isolated chromosome comprising DNA of claim 108.

125. (Currently Amended) An isolated chromosome comprising DNA of a cell generated by nuclear transfer of senescent, near-senescent, or checkpoint-arrested cells and said cell having the genome of a mammal, ~~which DNA comprises telomeres that comprise~~ comprising tracts of telomeric tandem repeat sequences that are more uniform than ~~are present in~~ telomeres-tracts of telomeric tandem repeat sequences of cells of said mammal;
~~wherein said more uniform tandem repeat sequences are in the portions of the telomeres of said DNA that connect at one end to chromosomal, non-telomeric DNA, and are as long as the telomeres of the cells of said mammal.~~

126. (Previously Presented) The isolated chromosome of Claim 125 wherein said DNA comprises telomeres that are at least as long as telomeres of cells of said mammal.

127. (Currently Amended) The isolated chromosome of Claim 125, wherein said DNA is genetically altered ~~with respect to the DNA of said mammal~~ by addition, modification, substitution, or deletion of one of more genes.

128. (Currently Amended) An isolated chromosome comprising DNA of a ~~a~~ an isolated cell generated by nuclear transfer of senescent, near-senescent, or checkpoint-arrested cells and said cell having the genome of a mammal, ~~which DNA comprises telomeres~~ comprising tracts of

telomeric tandem repeat sequences that are more uniform than ~~those present in telomeres~~ tracts of telomeric tandem repeat sequences of an age-matched control cell of the same type and species that is not generated by nuclear transfer ~~techniques~~;

~~wherein said more uniform tandem repeat sequences are in the portions of the telomeres of said DNA that connect at one end to chromosomal, non-telomeric DNA, and are as long as the telomeres of the age-matched control cell.~~

129. (Previously Presented) The isolated chromosome of Claim 128, wherein said DNA comprises telomeres that are at least as long as telomeres of said age-matched control cell.

130. (Previously Presented) The isolated chromosome of Claim 128, wherein said DNA is genetically altered ~~with respect to the DNA of said mammal~~ by addition, modification, substitution, or deletion of one or more genes.

131. (Currently Amended) Isolated DNA comprising a telomere produced by a method comprising:

- ~~a.~~ a) removing genomic DNA from a recipient mammalian oocyte;
- ~~b.~~ b) transferring a normal somatic mammalian donor cell that is senescent, near senescence, or checkpoint-arrested, the nucleus of said cell, or chromosomes of said cell, into the recipient mammalian oocyte to generate an embryo, and
- ~~c.~~ c) generating a rejuvenated cell from said embryo; and
- ~~d.~~ d) isolating DNA comprising a telomere from the rejuvenated cell.

132. (Currently Amended) The isolated DNA of claim 131, ~~wherein said~~ which DNA comprises ~~telomeres comprising~~ tracts of telomeric tandem repeat sequences that are more uniform than ~~those present in telomeres~~ tracts of telomeric tandem repeat sequences of cells of the mammal from which said donor cell was derived;
~~wherein said more uniform tandem repeat sequences are present in portions of the telomeres of said DNA that connect at one end to chromosomal, non-telomeric DNA, and are as long as the telomeres of the cells of said mammal.~~

133. (Previously Presented) The isolated DNA of claim 131, which DNA comprises telomeres that are longer than telomeres of the mammal from which said donor cell was derived.

134. (Previously Presented) The isolated DNA of claim 131, which DNA comprises telomeres that are at least as long as telomeres of cells of the mammal from which said donor cell was derived.

135. (Currently Amended) The isolated DNA of claim 131, ~~wherein said~~ which DNA comprises ~~telomeres comprising~~ tracts of telomeric tandem repeat sequences that are more uniform than ~~those present in telomeres~~ tracts of telomeric tandem repeat sequences of an age-matched control cell of the same type and species that is not generated by nuclear transfer ~~techniques~~;

~~wherein said more uniform tandem repeat sequences are present in portions of the telomeres of said DNA that connect at one end to chromosomal, non-telomeric DNA, and are as long as the telomeres of the age-matched control cell.~~

136. (Previously Presented) The isolated DNA of claim 131, which DNA comprises telomeres that are longer than telomeres of an age-matched control cell of the same type and species that is not generated by nuclear transfer techniques.

137. (Currently Amended) The isolated DNA of claim 131, which DNA comprises telomeres that are at least as long as telomeres of an age-matched control cell of the same type and species that is not generated by nuclear transfer techniques.

138. (Previously Presented) The isolated DNA of claim 131, wherein the mammalian donor cell is derived from a pig, goat, cat, dog, rat, mouse, bovine, buffalo, sheep, horse, rabbit, human or a non-human primate.

139. (Previously Presented) The isolated DNA of Claim 131, wherein the mammalian donor cell is derived from an ungulate.

140. (Previously Presented) The isolated DNA of Claim 139, wherein the ungulate is a bovine.

141. (Previously Presented) The isolated DNA of Claim 131, wherein the mammalian donor cell is derived from a human.

142. (Previously Presented) The isolated DNA of Claim 131, wherein generating the rejuvenated cell comprises obtaining a teratoma cell, an embryonic disc cell, an inner cell mass cell, and/or a stem cell using said embryo, and generating the rejuvenated cell from said teratoma cell, embryonic disc cell, inner cell mass cell, or stem cell.

143. (Currently Amended) The isolated DNA of Claim 131, wherein said DNA ~~which is genetically altered with respect to the DNA of the mammal from which said donor cell was derived~~ by addition, modification, substitution, or deletion of one or more genes.

144. (Previously Presented) The isolated DNA of Claim 143 which is genetically altered by a method comprising homologous recombination.

145. (Currently Amended) An isolated chromosome comprising the isolated DNA of Claim 131; wherein the step (d) of isolating DNA comprising a telomere ~~comprises isolating chromosomes from the rejuvenated cell.~~

146. (Currently Amended) An isolated nucleus comprising the isolated DNA of Claim 131;

wherein the step (d) of ~~isolating DNA comprising a telomere~~ comprises isolating the nucleus from the rejuvenated cell.

147. (Currently Amended) An isolated DNA comprising a telomere produced by a method comprising:

- a: a) removing genomic DNA from a recipient mammalian oocyte;
- b: b) transferring a normal somatic non-human mammalian donor cell that is senescent, near senescence, or checkpoint-arrested, the nucleus of said cell, or chromosomes of said cell, into the recipient mammalian oocyte to generate an embryo, and
- e: c) generating a rejuvenated cell from said embryo that contains DNA comprising a telomere.

148. (Currently Amended) The isolated DNA of claim 147, ~~which DNA comprises telomeres comprising tracts of telomeric tandem repeat sequences that are more uniform than those present in telomeres tracts of telomeric tandem repeat sequences~~ of cells of the mammal from which said donor cell was derived;

~~wherein said more uniform tandem repeat sequences are in the portions of the telomeres of said DNA that connect at one end to chromosomal, non-telomeric DNA, and are as long as the telomeres of the cells of said non-human mammal.~~

149. (Currently Amended) The isolated DNA of claim 147, ~~which DNA comprises~~ comprising telomeres that are longer than telomeres of cells of the mammal from which said donor cell was derived.

150. (Currently Amended) The isolated DNA of claim 147, ~~which DNA comprises~~ comprising telomeres that are at least as long as telomeres of cells of the mammal from which said donor cell was derived.

151. (Currently Amended) The isolated DNA of claim 147, ~~which DNA comprises~~ telomeres comprising tracts of telomeric tandem repeat sequences that are more uniform than those present in telomeres tracts of telomeric tandem repeat sequences of an age-matched control cell of the same type and species that is not generated by nuclear transfer techniques;
~~wherein said more uniform tandem repeat sequences are in the portions of the telomeres of said DNA that connect at one end to chromosomal, non-telomeric DNA, and are as long as the telomeres of the age-matched control cell.~~

152. (Currently Amended) The isolated DNA of claim 147, ~~which DNA comprises~~ comprising telomeres that are longer than telomeres of an age-matched control cell of the same type and species that is not generated by nuclear transfer techniques.

153. (Currently Amended) The isolated DNA of claim 147, ~~which DNA comprises~~ comprising telomeres that are at least as long as telomeres of an age-matched control cell of the same type and species that is not generated by nuclear transfer techniques.

154. (Currently Amended) The isolated DNA of claim 147, wherein the mammalian donor cell is derived from a pig, goat, cat, dog, rat, mouse, bovine, buffalo, sheep, horse, rabbit, human or a non-human primate.

155. (Currently Amended) The isolated DNA of Claim 147, wherein the mammalian donor cell is derived from an ungulate.

156. (Currently Amended) The isolated DNA of Claim 155, wherein the ungulate is a bovine.

157. (Currently Amended) The isolated DNA of Claim 147, wherein the mammalian donor cell is derived from a human.

158. (Currently Amended) The isolated DNA of Claim 147, wherein generating the rejuvenated cell comprises obtaining a teratoma cell, an embryonic disc cell, an inner cell mass cell, and/or a stem cell using said embryo, and generating the rejuvenated cell from said teratoma cell, embryonic disc cell, inner cell mass cell, or stem cell.

159. (Currently Amended) The isolated DNA of Claim 147, ~~which is genetically altered with respect to wherein~~ the isolated DNA of the mammal from which said donor cell was derived is genetically altered by addition, modification, substitution, or deletion of one or more genes.

160. (Currently Amended) The isolated DNA of Claim 159 which is genetically altered by a method comprising homologous recombination.

161. (Currently Amended) ~~A~~ An isolated mammalian chromosome comprising the DNA of Claim 147.

162. (Currently Amended) ~~A~~ An isolated mammalian cell nucleus comprising the DNA of Claim 147.